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Poverty and Income Distribution Incidence of the COVID-19 Outbreak: Investigating Socially Responsible Policy Alternatives for Turkey[1]

Hasan Tekgüç
Kadir Has University
Department of Economics

Ezgi B. Unsal
Kadir Has University
Department of Economics

And

A. Erinç Yeldan
Kadir Has University
Department of Economics

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ABSTRACT

The COVID-19 pandemic is being experienced as a *multidimensional systemic* crisis based on the simultaneous manifestations of the *supply, demand, and financial* shocks. These effects have already been realized in the exacerbation of deep inequalities in income distribution, in functional, regional, and gender terms; and therefore, in an environment where poverty is experienced with social exclusion due to severe inequalities of income. Within that context, this article has three interrelated objectives. First, we measure the macroeconomic impacts of COVID-19 for the Turkish economy through a general equilibrium model designed for this purpose. Second, we evaluate the effects of the crisis and the implemented policies thus far on poverty and income distribution. We find that in an optimistic scenario, Covid-19 would have increased poverty rate from 13.5 to 20%, and that government policies, at best, limited the increase in poverty to 18%. These policies also reduced the Gini coefficient by one percent at best. Finally, we propose more effective policy alternatives to mitigate the impacts of COVID-19 crisis on the Turkish economy which are compatible with public budget constraints.

Key words: Covid19 crisis, Turkey, socially relevant policy, labor, applied general equilibrium, income distribution

1. Introduction

There is no doubt that the COVID-19 pandemic has led to an unprecedented crisis in the world economy. Unlike prior crises which were triggered primarily by a single sector such as the financial crisis of 2008, the COVID-19 crisis was systemic in its nature and simultaneously created by (i) a shrinkage of global aggregate demand due to income losses, (ii) a global supply shock due to disruption of supply chains, direct health effects and lockdown measures, as well as (iii) a disruption in the financial markets especially in developing countries due to sudden stops of capital flows and devaluation of assets.

Furthermore, the crisis hit the world economy during a period of slow growth, especially since the 2008 financial crisis, together with increasing debt levels which reached 260 trillion dollars globally (322% of global GDP). Given the sheer scale of the shock combined with the already strained global macroeconomic climate, the long-term impacts of the crisis are expected to resemble and even exceed those of the Great Depression (Arthi & Parman, 2020; OECD, 2020; Saad-Filho, 2020). According to Roubini (2020), the sudden recession generated by this crisis in three weeks is equivalent to the one generated by the Great Depression in three years, therefore a "Greater Depression" is likely to shape the upcoming decade. IMF's World Economic Outlook in October 2020 predicted that the world economy shrank by 4.5% in 2020 (IMF, 2020a).

Prior to the crisis, the current macroeconomic policy framework was already being questioned for its inadequacy in terms of addressing slow growth and increasing inequality across countries and income groups. As documented by the extensive publications of the IMF, World Bank, ILO, and various international policy institutions, the policy rhetoric since the early 1980s has primarily focused on austerity measures in order to decrease the unit costs of production. These measures went hand in hand with the deregulation of the capital and labor markets and privatization of social provision such as healthcare and education, which were overall accompanied by a decline of the wage share and aggregate demand (ILO, 2020; Deleidi & Mazzucato, 2019; Fine & Saad-Filho, 2017; Ghosh, 2019). This policy approach which favours monetary expansion over fiscal policy has been named as *Maximizing Finance for Development (MFD)* approach and criticized by many for limiting the fiscal policy space for developing economies (Dimakou et al., 2020, Gabor, 2020). Recently, several studies published by IMF itself have demonstrated the negative impacts of such policies on income distribution and growth empirically (Ball et al., 2013; Ostry et al., 2016). According to these studies, fiscal austerity policies corresponding to 1 % of GDP would worsen income distribution, leading to an increase in the Gini coefficient by 1.5 % and an increase in unemployment by 0.6 % (Ball et al., 2013).

Within this context, the Turkish economy has been in a particularly vulnerable position in the aftermath of the currency crisis of 2018. TURKSTAT (2020b) reports that employment reached its highest level with 28,790 thousand in February 2018, but then has steadily declined to 27,601 thousand by February 2020 just before the eruption of the pandemic in Turkey. This decline meant

a loss of 1 million 190 thousand jobs already even before the pandemic hit. In other words, Turkish economy faced the COVID-19 pandemic within a serious slump. By August 2020, employment was further down to 26,836 thousand, and only partially recovered to 27,477 thousand in February 2021, the latest data available.

It ought to be noted that the employment figures are probably understating the severity of the problem due to the initiated temporary ban on job termination. Independent research based on the ILO's methodology of "*full time job equivalent losses of hours worked"*, as conducted by the Confederation of Revolutionary Workers' Unions (DISK) Research Department, estimates that Turkey suffered a loss of almost 3 million equivalent full-time jobs (DISK, 2021). IMF's Staff Report of November 2020 has put Turkey's loss of employment over its potential at 10.1% (IMF, 2020b), in line with DISK estimates. Thereby, we tend to argue that beyond the general negative macroeconomic repercussions of the crisis, one would have expected the widespread income and job losses to lead to immediate increases in poverty.

Against the pandemic many countries introduced a wide arsenal of fiscal policy instruments together with monetary accommodation. Yet, Turkey's response had almost exclusively relied on credit expansion and loan guarantees, while minimizing the role of fiscal policy. Coupled with compulsory *Presidential decrees* on setting a minimum ratio for banks' credit obligations (known as the so-called *active credit ratio*) and a zealous expansion of monetary supply, Turkish economic team hoped for the alleviation of the crisis conditions via short run financial expansion, while ignoring any real intervention on the part of incomes policy. Although many other emerging economies have already been dealing with limited fiscal space due to decades of austerity measures promoted by the international financial institutions, we find that Turkey has diverged even further away from many of her emerging economy counterparts in its response to Covid-19 crisis by almost exclusively relying on short-term monetary expansion.

We argue that the policy performance of Turkey over the course of the first year of the pandemic has been erratic and severely biased against wage earners and low-income groups. Furthermore, pursued in the midst of an already inflated asset markets, it proved destabilizing and inflationary along with significant currency depreciation. Official statistics by TURKSTAT revealed a modest

positive rate of growth for the GDP at 1.9% for 2020. As indicated above, this was mainly achieved by the short run expansion of credit which increased at a rate of 150% reaching to a ratio of 80% to the GDP (from an average of 30%), and by vigorous monetization that expanded the M1 supply of money by almost 200% over the first nine months of 2020. These GDP figures paint a different picture to the employment figures reported above, and probably driven by increases in housing prices due to credit expansion (detailed National Accounts data for 2020 is not released as of writing).

All these had severe repercussions on wage incomes as well as on the rural and urban poor, with an increase in poverty rate. Our own estimates based on the Survey of Income and Living Conditions (SILC, 2018) accounting for the modest financial relief provided to individuals and families and the reported sectorial employment losses along 2020, reveal that the total wage revenues declined by 16 % and household incomes by 11 % (narrated in detail in section 4 below). As a result, relative poverty rate (50 % median income as threshold) increased from 13.5 to 18 % even after taking into account financial relief[2].

Given this background, our aim in this article is to analyze the upon-impact effects of the COVID-19 outbreak on the Turkish economy and to investigate policy alternatives that can be implemented against these impacts. More specifically, we have three interrelated objectives. First, we measure the macroeconomic impacts of COVID-19 for the Turkish economy through a general equilibrium model designed for this purpose. Second, we examine the effects of the crisis on poverty and income distribution specifically based on data from Survey of Income and Living Conditions (SILC). Finally, based on our empirical findings, we develop socially responsible policy alternatives to mitigate the impacts of COVID-19 crisis on the Turkish economy. We utilize a *macroeconomic applied general equilibrium model* designed for this purpose; and examine the effects of the crisis conjuncture caused by the COVID-19 outbreak on sectoral production, employment, wages, and capital revenues, national income, and foreign trade balances. Then, we provide an analysis of defensive policies that could be developed against the crisis.

[2] Official poverty and income inequality estimates for 2020 are not released yet, and TURKSTAT does not share raw data with researchers until the official statistics are produced. Our poverty and inequality estimates are probably optimistic because they do not take into account the secondary effects of declining consumption due to declining incomes.

Our results suggest that by pursing a targeted fiscal income transfer program covering wage earners and small-sized family-owned enterprises, at a modest ratio of 2.9% to the GDP, Turkey could have achieved a more egalitarian and effective response to the Covid-19 crisis; sustain the level of aggregate demand; and generate a more conducive environment towards improved macroeconomic balances.

The plan of the paper is as follows: in the next section we overview the response to COVID-19 globally and by the Turkish government while situating Turkey's macroeconomic conditions at the dawn of COVID-19 pandemic. In Section 3, we develop an applied macroeconomic general equilibrium model to estimate the direct effects of COVID-19 pandemic in the absence of any counter public policy. In Section 4, we analyze the poverty and distributional consequences of the implemented socio-economic packages. In Section 5, we sketch an alternative path, to be referred as *Labor Income Support* program, that could have been followed even under the budgetary constraints of late 2019 and would have generated much better results in social welfare. Section 6 is reserved for concluding comments.

2. Global responses and Turkey's main policy instruments against the pandemic

The global economy has been experiencing a slowdown in growth especially in the aftermath of the global financial crisis. In the past ten years, the average growth rate has been under three % globally, raising doubts whether the economy has entered a long-term "secular stagnation" phase (Gordon, 2015; Summers, 2015). Within that context, beyond its immediate health impacts, the most important long-term risks of the pandemic for the global economy were identified as first, disruptions to global value chains which would further slowdown growth; second, long-term stagflation; and third, inequality across countries and income groups which is the primary focus of our paper.

In an attempt to address the crisis, the IMF has announced a direct aid scheme worth $160 billion, starting from October 2020. Of that amount, $50 billion is addressed for those developing economies that are members of the International Development Association (IDA). In addition to

direct financial aid, the IMF has also promised to extend bilateral agreements, provide credit flexibility, debt restructuring as well as direct debt relief for 29 countries. However, as Dimokou and others (2020) suggest, the IMF response to the global pandemic has been limited to its "*Maximizing Finance for Development*" approach, and failed to address systemic fragilities especially in many developing economies that existed prior to the crisis.

During and before the COVID-19 outbreak, the IMF has published studies claiming that widespread financial inclusion would be supportive of improved income equality and growth (Cihak & Sahay, 2020; Sahay et al., 2020). In that sense, while financial inclusion was promoted in order to decrease income inequality, governments were typically pressured for imposing conditionalities of austerity, and warned against the dangers of extensive fiscal packages given the excessive levels of global debt[3] (Sahay et al., 2020). Other policy institutions, such as UNCTAD, announced more comprehensive policy programs which might point to a break in the global policy practices. UNCTAD has criticized the IMF quota system which would systemically favour creditors, and suggested a new aid system which would include some radical measures such as extensive debt relief, restructuring and even capital controls for fragile economies (UNCTAD, 2020). As the implementation of capital controls have been considered as an extreme measure in the policy rhetoric of international financial institutions since the Asian crisis, UNCTAD's policy program is striking in terms of pointing towards a divergence from the recent policy consensus favoring globalization. Similarly, Rodrik (2020) and Milanovic (2020) argued that the crisis will reverse the globalization trend which had already reached its natural limits and result in the re-establishment of the autonomy of national economies in the form of increased state capacities.

Despite the change in the policy rhetoric towards a greater emphasis on fiscal policy, Turkey's official response to the Covid-19 crisis over the summer months of 2020 relied too heavily (almost exclusively) on *monetary tools*, mainly by way of *credit expansion* and *debt-driven incomes* policies (Elgin, Başbuğ and Yalaman, 2020; IMF, 2020b, 2021). Fiscal data released by the Ministry of Treasury and Finance (MTF), for instance, documents that of the total YTR 444.7 billion (roughly US$68.5 billion; or 9.94% to the 2020 GDP) worth of relief measures introduced, the major item constituted of credits and credit concessions by the public banks, with a share of

[3] https://blogs.imf.org/2020/10/14/fiscal-policy-for-an-unprecedented-crisis/

80%. Cash and direct support granted to the household sector, on the other hand, was only 7.4% of the total as of end of September 2019 (see Table 1 below).

<Insert Table 1 here>

IMF (2021), on the other hand, reports that as of March 2021 the entire support package amounts to YTR638 billion (12.7 % of GDP) and documents that only 1.1% of this was composed of "additional fiscal spending and foregone fax revenue", with the rest consisting of various monetary measures –credit, equity, and loan guarantees, *etc*. Accordingly, of this around TL165 billion (3.3 % of GDP) was financed through the budget, the rest has been financed through off-budget resources. The package included (i) loan guarantees to firms and households (6.4 % of GDP), (ii) loan service deferrals by state-owned banks (2.6 % of GDP), (iii) tax deferrals for businesses (1.4 % of GDP), (iv) equity injections into state-owned banks, (0.4 % of GDP). Only a small portion of this package is direct support to households: (i) a short-term employment support scheme (0.6 % of GDP) (this expired in March 2021) (ii) direct income transfers to poor households (0.15 % of GDP), and (iii) raising of minimum pension amounts (total size not reported). Other indirect support measures include: employee layoffs have been banned from April, 2020 to March 2021, and VAT has been reduced on certain goods such as food and accommodation services until May 2021.

IMF in its *Policy Responses to Covid-19 Tracker* (IMF 2021) reports that, as a ratio to the GDP, the emerging market and middle-income economies (EMMIEs) sustained a fiscal support policy package of additional public expenditures and foregone tax revenue at 3.6%, with monetary expansions of equity, loans and guarantees at 2.5% (Figure 1). The fiscal support programs reached as high as 8.2 % in Chile, and 8.3 % in Thailand and Brazil. Turkey's fiscal support program, on the other hand, has a dismal 1.1 %, while the size of its monetization package reached 9%. As a ratio to GDP, Turkey's fiscal support falls short of even the Low-Income Developing Economy average reported at 1.6 %. This diverging trend is clearly visible from Figure 1.

<Insert Figure 1 here>

It is our contention that this strategic choice cannot be explained solely by arguments relying on *limited policy space*, or *conditionalities of austerity over fiscal expansion*. We speculate that this outcome rather mostly as a continuation of the ruling *Justice and Development Party* (JDP) government's strategic search towards consolidating its broad coalitions of industrial and construction conglomerations and various segments of the domestic and international finance capital. Often pursued via a *clientelist incentivization*, the history of the JDP rule over the last eighteen years was typically marred with a *debt-ridden* model of *speculative growth* (*a la* Grabel, 1995) within a broader neoliberal framework where formal regulatory institutions were dismantled and the sheer governmental power was instrumentalized to suppress social, economic and political barriers constraining accumulation of wealth of the preferred clients and elites (Orhangazi and Yeldan, 2021; Öniş, 2019; Yeldan and Ünüvar, 2016; Buğra and Savaşkan, 2014; Orhangazi, 2014). Thus, we read from the polices ensued over the course of 2020 a strategic preference to align common interests via speculative finance and rent seeking, rather than pursuit of a progressive incomes policy. Yet, these issues are clearly beyond the scope of the current paper. Rather, we now turn to our attention to the technical modeling contributions of our study.

3. Macroeconomic Impact Analysis of Covid-19 on the Turkish economy

3-1. The Macroeconomic General Equilibrium Model

The counter-factual analysis of our study involves a general equilibrium model based on macroeconomic balances of the Turkish economy in 2019, and is constructed based on our previous modeling exercises -*viz.* (**Ref hidden here to ensure authorship unanimity**). The analytical approach is to be based on the methodology of applied general equilibrium distinguished as *computable general equilibrium* (CGE) modeling. The methodological rationale for this choice is due to the urgent need to improve our understanding of the complex trade-offs between attaining objectives of aggregate demand management, protection of incomes, and enhanced social welfare within an open macroeconomic environment.

The CGE modeling methodology presents itself as the most conducive analytical apparatus to capture these diverse objectives and policy trade-offs with a coherent system of data management and scenario analyses addressing issues of sustainability and income equality simultaneously. First

and foremost, a distinguishing feature of the current model is that it deliberately takes account of the rigidities in the labor and capital markets by introducing explicit gaps against the equalization of the wage and profit rates across sectors. This feature underlines the *structuralist* tradition of the model. These structuralist "distortions" are set from the existing data on wage rates (and the rates of profit) across sectors and are maintained as rigid divergences from equalization of the "average" wage rate. *Migration* is a further behavioral rule, governing the movement of labor from the low wage sectors towards the high wage sectors. The model is built on the augmented input/output (I/O) data structure provided by TURKSTAT. The most recent official I/O data is from 2012. Starting from this data set we updated the I/O structure to the 2019 macroeconomic balance of the Turkish economy. Based on an aggregation of 24 sectoral production activities and two labor types (formal and informal), the activities of the national economy in production, employment, income generation, saving and consumption, and market balances are described through algebraic equations

Commensurate with the production activities, incomes are generated through the disposition of wages, profits, and other factor payments. Income remunerations are channeled to the households whose role in the system is to dispose-off the generated factor income as (private) consumption expenditures on goods and services or (private) savings. Saving funds, in turn, are driven by the aggregate investment demand in the short run to accentuate the potential output in the next production cycle.

A general description and the algebraic structure of the model is laid down in Online Supplemental Material A, and is available from the authors upon request.

3-2. Investigation of the Economic Effects of the COVID-19 Crisis

Taymaz (2020) has provided one of the initial analyses for Turkey with an input-output methodology, to study the impacts of Covid-19 on the sectoral production and employment along with various policy alternatives. In his analysis, Taymaz utilized a comprehensive dataset of 2017 and sought answer to the question of "*how would Turkey's economy be affected in terms of sectoral value-added, employment, and wages if the COVID-19 outbreak occurred at the end of 2017?*".

His study is based on the 2012 input-output dataset and is updated using sectoral value-added and employment shares of 2017. The methodology of Taymaz (2020) is based on the production connections determined by 2012 I/O coefficients and is a first step of the *partial equilibrium* results. Hence, it does not take into account the effects that may arise as a result of relative price changes, or the consumption/investment demand and foreign trade effects that will be experienced in all sectors due to the ensuing loss of income.

Based on all these observations and initial study results, we implement the demand shocks of the Covid-19 outbreak by imposing a significant decline of 60% in private consumption and export demand of 60% in the "restricted" *air transportation, accommodation, and food services and tourism* sectors. Other "limited" sectors are assumed to suffer from a 26% further decline in private consumption and exports for the *textile and clothing, petroleum products, machinery, and white goods industry, automobile - motor vehicles, retail trade, and land transportation* sectors. Besides, in line with the sectoral definition and consolidation in the model, the demand for health services is assumed to increase by 20% after the shock. In the "restricted" sectors, the formal sector real wages are assumed to decline by 18% given the low aggregate demand.

Under the "constrained environment" generated by the shocks of the Covid-19 outbreak, the macroeconomic balance of the model is used to analyze the "*upon-impact effects*" of the crisis. These *effects* go beyond the input-output connections of the national economy which are ultimately restricted to the production process. Here we follow the general equilibrium effects of the decline in the income of households and businesses as a result of income losses due to unemployment and wage contraction, leading to the decline in aggregate demand. On the other hand, declining demand causes the public budget deficit to increase due to the decrease of public tax revenues. Shrinking domestic production and demand lead to the redefinition of the national savings-investment deficit (current account balance). In this process, the exchange rate is also re-adjusted to restore the balance of payments in the foreign exchange market. Consequently, the analysis of these *upon impact effects* constitutes a new balance of the now-contracted national economy. All these adjustments take place within the mechanisms of the overall general equilibrium system.

These macroeconomic *upon impact effects* of the CovidD-19 outbreak and the associated demand shocks on the national economy are presented in Table 2. We show the sectoral production and employment effects in Figures 2 and 3.

<Insert Table 2 here>

The model results illustrate that the upon impact economic effects of the restrictions on the Covid-19 outbreak would be an annualized decline of 26.7% in national income (GDP). Shock waves from the restricted sectors decrease total employment (relative to the end of 2019) by 22.8%, from 28.2 million people to 21.8 million. The estimated loss in employment is very close to the total of decline in employment (1.6 million, see Table 2) plus furloughed workers (4.75 million, see Online Supplemental Material B). Private disposable income declines by 26.5%, and the total private consumption expenditure demand decreases by 23%.[4]

Upon impact, the model results show a 27.8% loss in total export revenues, given the precautionary measures. Import demand also decreases by 29.5%. Given burden of foreign debt servicing and foreign profit transfers, expected improvement in the current balance remains limited. Thereby, pressures in the foreign exchange market lead to a *real deprecation rate* of YTR by 30.5% under the Covid-19 outbreak.

Finally, the analysis of the effects of the epidemic at the sectoral level indicate that the five sectors that experience the highest contraction in real production relative to 2019, are *accommodation and food services*, by 55.6%; *tourism*, by 51.5%; *construction*, by 48.7%; *air transport* by 47.7%; and *iron and steel* by 40.5%. In addition, private consumption expenditures show considerable declines in *air transport and accommodation and food services and tourism* (61.1%). The sectoral distribution of employment also follows the contraction in production. We further observe that the

[4] This estimated decline in disposable incomes is significantly more than our estimate in the next section. The discrepancy is partly due to estimates in this stage do not incorporate actual policy interventions, whereas we evaluate the effect of these policies in the next section. Nevertheless, policy evaluation presented in the next section is a static estimate of direct decline in disposable incomes and do not take into account the indirect effects of the actual decline in incomes. The truth lies somewhere between these two estimates. Besides private consumption expenditures, the contraction in investment expenditures is found to reach 66.7%.

shrinking demand leads to price and general equilibrium effects spreading over to overall sectors of the economy.

<Insert Figure 2 and Figure 3 here>

4. Microeconomic Study of Income Losses under the Covid-19 Crisis

In this section we deepen our focus and present our predictions of monthly direct income loss due to lockdowns and pandemic induced fall in demand. Given the unprecedented nature of pandemic trajectory, we limit our poverty and inequality predictions to short term in order to use available data. In Turkey, most of the direct economic effects of pandemic on households is through labor market and the latest available employment data were from August 2020 as of November 2020. So our predictions in this section should be regarded as initial and direct effects of pandemic on household incomes (i.e. we do not model subsequent effects of initial income losses). Basically, we incorporate employment loss and pandemic related regulations and transfers into the Survey of Income and Living Conditions (SILC) and predict poverty and inequality measures for 2020.

The primary labor market emergency regulations employed by the government that we incorporate into our analysis are i) banning of job termination during pandemic and ii) modest wage support for furloughed employees. Nevertheless, one-third of employment in Turkey is informal and informal workers are not protected by job termination bans and they do not qualify for any wage support. Moreover, formal sector employees can still lose their jobs if their employer went bankrupt. So, at first step we incorporate change in employment (Table 2) to our predictions. Secondly, we assign income loss to workers who are furloughed. Thirdly, we assigned income losses to self-employed due to lock-down. At the end of step three, we obtained our predictions for employment income loss (see Table 4). Fourthly, we assigned income losses to households due to uncollected rents. Finally, we assigned emergency relief and other enhanced social assistance measures to households and predict overall change in household incomes (see Table 5). Below we provide details on data sources and further details of methodology is provided in Online Supplemental Material B.

4-1. Microeconomic Household Level Data Analysis

For our micro level analysis, we utilize two main sources of data. We obtain the micro-data on household employment and incomes from SILC is 2018 wave (most recent available as of November 2020). SILC 2018 (TURKSTAT 2020a) reports incomes both from employment and non-employment sources (such as public transfers) and it is collected by TURKSTAT to produce official poverty and inequality estimates. Tekgüç (2018) compare SILC 2018 and National Accounts and shows that SILC's coverage of wage and transfer incomes are pretty accurate however entrepreneurial and financial incomes are severely underreported. SILC reports the incomes of the previous full year (in this case, 2017) and the employment of the survey year. As a first order of business, we inflate all the monetary values to February 2020 due to the relatively high level of inflation in Turkey (on average prices increased by 43.5 % between 2017 average and February 2020 (TURKSTAT 2021)). Turkish Lira seriously deteriorated in 2020 (from 5.95 YTR/$ to 7.42 YTR/$) and the inflationary consequences of this steep depreciation is still playing out. So by choosing to inflate all monetary values to February 2020, we exclude the effects of the latest bout of inflation from our analysis.[5] We obtain the most recent aggregate employment figures from TURKSTAT Labor Force Statistics web-site (TURKSTAT 2020b). Finally, we obtain the aggregate amount of various public transfers to individuals from Ministry of Treasury and Finance (2020) (see Table 1 above).

< insert Table 3 here >

4-2. Findings

Table 4 top two panels report the average employment incomes for men and women whereas Peculiarities of Turkish labor market show themselves both in Table 4. Total employment income in 2018 is almost four times larger for men (73 vs. 19 billion YTR per month) because men are much more likely to be employed, much less likely to be unpaid family workers and more likely to be entrepreneurs. As a result of these specific conditions of Turkish labor market, the labor market effects of pandemic conditions are very different than most other countries. Firstly, women suffered disproportionately less direct employment income loss, because most of the loss in female employment is concentrated among women in unpaid family workers (especially in agriculture). Moreover, women with tertiary education is disproportionately represented among female wage

[5] Aygün, Köksal and Uysal (2020) follows a similar practice.

employees and furthermore these women are concentrated in public sector, especially health and education, which suffered relatively much less furloughs. Secondly, significant decline in male employment already happened in 2019 in construction sector (both formal and informal). Furthermore, men lost much more income due to furloughs and experienced further losses due to loss in self-employed and entrepreneurial incomes because men dominate these employment categories. As a result, between 2019 and March-August 2020, monthly income of men declined from 70 to 58 billion YTR (17 % decline) whereas women experienced 12 % decline.

<insert Table 4 here>

Figure 4 shows the distribution of employment income in 2018 and 2020 (after employment effects accounted for) however, it partially understates the effect of employment losses because the 2020 distribution do not include people who lost their jobs. Nevertheless, the overall downward shift in employment income and concentration around the short term wage support program amounts (KÇÖ and NÜD after Turkish acronyms, see Online Supplemental Material B for details) is very visible, especially more than 20 % for men. For men, most of the income losses are from 2,000-4,000 YTR per month range.
<insert Figure 4 here >

Table 4 third panel presents the aggregate employment income and bottom panel incorporates modifications for steps 4 (rental income loss) and 5 (emergency social assistance and increase in minimum pension to 1,500 YTR per month) to total (not per capita) household incomes. We predict that household incomes decline 2 % between 2018 and 2019 and further 11 % between 2019 and 2020. Overall, the effect size of steps 4 (rental income loss) and 5 (public transfers) are much less than the effect of employment loss. Figure 5 presents the distribution of equalized per capita household distribution. We estimate that many households which lost income had per capita incomes between 2,300 YTR (roughly median in 2018) and 5,000 YTR per month. The effect of rental income loss is much less pronounced. Finally, bottom panel of Figure 5 shows the effect of social assistance on household income distribution. The social assistance policies are able to push some households' income towards 1,000 – 1,500 YTR per person per month range.

<Insert Figure 5 here>

We present our detailed estimates for income distribution and poverty respectively in Table 5.[6] Table 5 presents the regional poverty in 2018 and March-August 2020 (before and after social assistance accounted for). Istanbul, Eastern Marmara, and Central West (which includes Ankara) experienced largest increase proportionally. Since pandemic initially effected employment incomes, the largest increases in poverty unsurprisingly happened in regions with highest wage employment. Bottom part of Table 5 shows the step-by-step change in inequality measures. Despite their modest overall size, emergency social assistance and increase in minimum pensions manage to meaningfully reduce overall inequality.
<insert Table 5 here>

In short, household welfare is significantly and negatively affected by COVID-19 pandemic. In the next section we propose an alternative set of policies that was and is still viable even within the severely constrained budgetary situation of Turkey. Moreover, these set of policies would have sustained household welfare much better.

5. Seeking for an Alternative Against the Economic Effects of the Covid-19 Outbreak: Labor Income Support Program

As noted above, the Covid-19 outbreak has been taking place in a conjuncture where Turkish economy has shown relatively weak macroeconomic balances, with especially the relatively high budget deficit of the public sector (2.9% as a ratio to GDP) and a stagnant fixed capital investment performance. By the end of 2019, when the national income (GDP) growth was only 0.9%, total employment decreased by 703 thousand people compared to the previous year.

[6] Table B1 in Online Supplemental Material B presents official poverty and inequality statistics from TURKSTAT for 2018 and 2019 and our estimates for 2018, 2019 and 2020. Our estimates for 2018 is pretty close to official estimates, however we overestimate Gini coefficient for 2019. This over-estimation is probably due to projection of top of 2018 distribution to 2019. In reality higher income households (especially households with entrepreneurial income) may have experienced relative income decline due to economic turbulence in 2019. Table B2 in Online Supplemental Material B shows changes in household incomes by decile.

As an alternative policy package, we utilize the macroeconomic general equilibrium model as a social laboratory. The priority of this package is directed to the purpose of supporting household incomes, and it is envisaged to be implemented in the form of a direct income support from the public sector. Technical elements of the mentioned *Labor Income Support* (LIS) package are summarized as follows:

(i) support for wage earners with a continuous annual income transfer, which corresponds to 50% of the average wage of formal labor;
(ii) support for the small and medium-sized companies and self-employed; and
(iii) increased public consumption expenditures by 20%.

The model results show that the fiscal burden of the *LIS program* will be on the order of 123.5 billion YTR in 2019 fixed prices and will reach 2.9% of the 2019 national income. As a result of the implementation of the package, 85% of households' wage income losses are to be compensated, and gross domestic product yields a 60% increase relative to the level likely to be created by the Covid-19 outbreak (see Table 2 above).

Thus, relative to the pre-epidemic values realized in 2019, the loss in labor income remains below the program only at 6.67%. Supporting labor incomes in this way will primarily stimulate private consumption demand. Model results state that the consumption expenditures under the LIS program will increase by a 6.67% increase relative to the effects of the Covid-19 epidemic. Thus, with these multiplier effects, gains spread throughout the economy. The stimulated incomes through the intermediate input-output linkages lead to a 14.43% expansion in national income (GDP), resulting in national income losses that will be relative to 2019 as 16.17%.

<Insert Figure 6 here>

The LIS program also creates relatively positive results in public sector budgetary balances, and reduces the budget deficit to below half of what had been projected under the Covid-19 scenario. Along with the indirect effects due to the economic recovery, public budget revenues have increased by 45% relative to the COVID-19 environment. Model results indicate a rise by 59% in

the production tax revenues relative to COVID-19; and indirect consumption tax revenues also increase by 51%. The increase in corporate income tax revenue reaches 27%. Therefore, according to the model's solutions, against the 274 billion YTR in the COVID-19 balance, 57.3 billion YTR (274mil - 217mil) of the package cost is "recovered" thanks to the revival created by the proposed alternative strategy. Thus, the ratio of the budget deficit to GDP is reduced from 12.3% under the Covid-19 outbreak, to 6.3% under the LIS package application (the realized figure for 2019 being 2.87%).

<Insert Figure 7 here>

The sectoral distribution of production recoveries is displayed in Figure 8. Model results indicate that the sectors that showed the fastest increase compared to the Covid-19 outbreak are *construction* (54%), *iron* and *steel* (51%), *cement* (35%), *chemicals* (17%) and *machinery and household appliances* (22%). The revival, which is ultimately based on invigorated consumer demand, is maintained primarily through intermediate goods and investment sectors. On the other hand, these results are due to the increase in the demand for the economy's fixed capital investment by 124% relative to the Covid-19 scenario, decreasing from 66% to 25% relative to 2019.

<Figure 8 will here>

In sum, we find that the benefits of an income transfer programme targeting labor incomes will produce quite conducive results, and furthermore, it's fiscal costs will be modest. Yet, conditions for applying such a policy package will surely be dependent on the political will and political determination.

6. Conclusion

In this paper, we have documented the economic and social impact of the Covid-19 pandemic on Turkish economy. Turkey's socio-economic experience against the Covid-19 crisis narrates an almost conventional mode of adjustment implemented through expansionary monetary policy,

with limited income support programmes and neglect of the income distribution consequences of the pandemic.

Relying almost exclusively on credit expansion, the government expected a quick and easy return to its policy of zealous expansion in aggregate demand, fueled via debt instruments and open-ended credit finance. This approach is not very unique, in line the *Maximizing Finance for Development Approach* by the IMF itself, which puts the private sector at the center of development at the expense of fiscal capacities. Furthermore, this *debt-ridden* model of speculative growth had been definitely in line with the historical preference of the ruling JDP government emphasizing expansion of domestic demand at all costs, the detrimental results of which had been manifested in spiralling pressures of inflation and foreign exchange crises, along an unsustainable balance of payments constraint.

The effective result of this speculative growth episode had been prolonged inflation under severe unemployment –especially among the young and women, and a worsening income distribution, along with intensified poverty. Against all this we argued that a targeted fiscal income transfer to the working labor as well as small and family-owned enterprises could have produced more egalitarian and effective results, sustain the level of aggregate demand at lower cost, and might serve as a catalyst for improved macroeconomic balances.

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Table 1: Pandemic Relief Measures

	Amount (million YTR)	per person or per household per firm benefit	estimated beneficiaries
Direct Assistance			
Short-term wage support	18,700	1,766	3,529,634
Cash wage support	4,400	1,168	1,255,708
Unemployment benefits	3,600	1,766	407,701
Direct support to households	6,200	1,000	6,200,000
Minimum retirement pension (1500 YTR)	??		
Credit			
Households with low incomes	47,500	5,278	9,000,000
Small enterprises	29,900	37,992	787,000
Working capital	143,000	722,222	198,000
Postponement of re-payment to public banks	122,000		
Social Security Contributions' postponement			
Workers' contribution	40,000		
Self-employed contribution	29,400		
Total	444,700		

Notes: Prepared from Ministry of Treasury and Finance September 29th, 2020 press release. Press release only contains round numbers for total amounts and number of beneficiaries only in some categories. In order to estimate the number of beneficiaries in the first three rows, we divided the total provided by most likely amounts. For details, see text. There is no information on the total amount or number of beneficiaries benefitting from increase in minimum pensions.

Table 2: The Covid-19 Pandemic in Turkey and Labor Income Support Program Macroeconomic Results

	Covid-19 Pandemic	**Labor Income Support Program**	
	Changes Against end of 2019 (%)	Changes Against end of 2019 (%)	Changes Against the Effects of Covid-19 Pandemic (%)
GDP	-26.74	-16.17	14.43
Private Disposable Income	-26.48	-14.19	60.32
Labor Income Households	-44.75	-6.67	68.91
Capital Income Households	-4739	-18.18	55.53
Private Consumption Expenditures	-22.96	-17.82	6.67
Investment Expenditures	-66.65	-25.14	124.48
Total Exports (Billion US$)	-27.79	-19.27	11.80
Total Imports (Billion US$)	-29.50	-20.46	12.83
Current Account Balance / GDP (%)	-6.96	18.54	27.41
Exchange Rate Real Depreciation (YTR / US$)	-30.49	-2.60	27.89
Labor Markets			
Total Open Unemployment	137.57	20.20	-49.40
Unemployment Ratio (%)	33.74	17.07	-49.40
Total Employment	-22.77	-3.34	25.15
Public Sector (Central Administration) Budget Balance			
Changes in Total Public Expenditures	-22.13	-9.70	15.96
Public Consumption Expenditure	-26.26	-11.51	20.00
Changes in Total Revenues	-48.70	-25.50	45.23
Taxes on Production and Employment	-51.70	-23.03	59.35
Taxes on Consumption (VAT + SCT)	-47.72	-21.01	51.10
Income Taxes (Households)	-46.48	-46.48	0.00
Income Taxes (Corporate Sector)	-49.18	-35.42	27.06
Changes in Budget Deficit	+123.49	+76.89	-20.85
Budget Deficit / GDP (%)	12.35	6.34	-48.64
Domestic Debt Stock / GDP (%)	61.63	39.99	-35.11

Table 3: Employment by Gender, Industry and Formality (15+ population)

	thousand persons			% change	
Men	**2018**	**2019**	**2020**	**2019/2018**	**2020/2018**
agriculture, formal	700	585	691	-16.37	-1.31
agriculture, informal	2,247	2,263	2,220	0.71	-1.22
industry, formal	3,570	3,466	3,516	-2.92	-1.51
industry, informal	723	749	563	3.69	-22.13
construction, formal	1,232	905	887	-26.53	-27.96
construction, informal	673	587	505	-12.83	-24.98
services, formal	8,402	8,274	8,107	-1.53	-3.51
services, informal	2,157	2,330	1,742	8.01	-19.28
men, formal	13,904	13,230	13,202	-4.85	-5.05
men, informal	5,800	5,929	5,029	2.23	-13.30
Women	**2018**	**2019**	**2020**	**2019/2018**	**2020/2018**
agriculture, formal	212	95	114	-55.25	-46.44
agriculture, informal	2,144	2,133	1,863	-0.52	-13.12
industry, formal	943	983	995	4.31	5.59
industry, informal	417	368	299	-11.63	-28.36
construction, formal	73	62	72	-14.97	-1.71
construction, informal	9	5	3	-46.79	-68.81
services, formal	3,990	4,025	3,962	0.89	-0.71
services, informal	1,229	1,249	957	1.62	-22.13
women, formal	5,217	5,165	5,142	-1.00	-1.44
women, informal	3,798	3,755	3,121	-1.16	-17.84
total, formal	19,121	18,395	18,343	-3.80	-0.28
total, informal	9,599	9,684	8,150	0.89	-15.84
Total	28,720	28,079	26,493	-2.23	-7.75

Notes: 2018 and 2019 figures are annual averages. 2020 figures are March-August average. Source: TURKSTAT (2020b).

Table 4: Change in Employment and Household Incomes

Men	people with employment income (thousands)	average employment income, YTR	total employment income (million YTR)
2018 wage and entrepreneurial income	19,516	3,731	72,815
2019 effect of job terminations	18,727	3,740	70,029
2020 effect of job terminations	18,003	3,773	67,920
2020 some terminated received unemp benefits	18,408	3,729	68,635
2020 effect of furloughs	18,499	3,336	61,718
2020 effect of lockdown on entrepreneurs	18,499	3,136	58,008
Women			
2018 wage and entrepreneurial income	8,426	2,253	18,988
2019 effect of job terminations	8,333	2,266	18,883
2020 effect of job terminations	7,752	2,371	18,381
2020 some terminated received unemp benefits	7,777	2,369	18,425
2020 effect of furloughs	7,778	2,183	16,980
2020 effect of lockdown on entrepreneurs	7,778	2,130	16,571
Men and women, employment income			
2018 wage and entrepreneurial income	27,942	3,285	91,803
2019 effect of job terminations	27,059	3,286	88,912
2020 effect of job terminations	25,755	3,351	86,301
2020 some terminated received unemp benefits	26,184	3,325	87,060
2020 effect of furloughs	26,277	2,995	78,698
2020 effect of lockdown on entrepreneurs	26,277	2,838	74,580
Household Income	**# of households (thousands)**	**average hh income, YTR**	**total hh income (million YTR)**
2018 income, observed	23,596	6,143	144,957
2019 income, emp income loss & min pension inc	23,596	6,035	142,390
2020/3 income, empl income loss	23,596	5,415	127,768
2020/4 income, rental income loss	23,596	5,315	125,404
2020/5 income, min pension inc & emergency	23,596	5,395	127,296

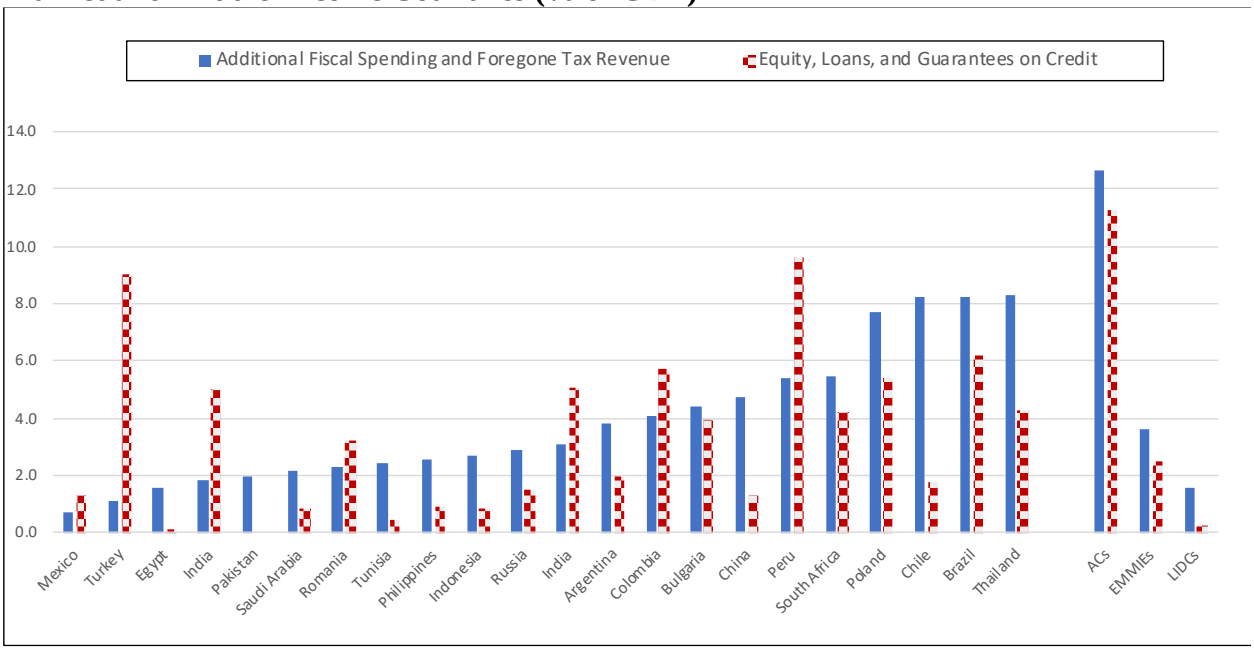
Notes: All figures are indexed to February 2020. 2020 figures are March-August average. YTR stands for Turkish Lira. Effect of furloughs report the estimated net aggregate wage loss. In other words, it takes into account 7,700 million YTR per month transferred to furloughed employees via KÇÖ and NÜD. Total net decline for men and women is 8,362 million YTR per month after furloughs. It would have been slightly more than 16,000 million YTR per month without KÇÖ and NÜD.

Table 5: Change in Regional Poverty

	2018 %	2020/4 %	2020/5 %	change 2018 - 2020/5	
Istanbul	5.1	11.1	10.0	**4.9**	**97%**
Western Marmara	12.3	18.3	16.3	4.0	33%
Aegean	9.2	15.0	12.8	3.7	40%
Eastern Marmara	6.7	13.6	12.6	**6.0**	**90%**
Central-West	7.9	14.4	13.1	**5.3**	**67%**
Mediterranean	16.9	24.2	21.4	4.5	27%
Central	16.2	23.9	21.4	5.2	32%
Western Blacksea	13.7	18.7	16.8	3.1	23%
Eastern Blacksea	11.1	16.9	14.9	3.8	34%
Northeastern	26.4	33.6	31.2	4.9	18%
East-Central	31.8	38.2	35.4	3.6	11%
South East	43.2	50.7	47.4	4.1	10%
Turkey	13.5	19.9	18.0	4.5	34%
Turkey average	2,963	2,606	2,651	-312	-11%
Turkey median	2,383	2,118	2,153	-230	-10%
Turkey Gini	0.41	0.41	0.40	-0.01	-2%
Turkey p90/p10	5.45	5.86	5.54	0.09	2%
Turkey p90/p50	2.42	2.42	2.39	-0.03	-1%

Notes: Household size is calculated by OECD equivalence scales: first adult is assigned one, other adults (14+) 0.5 and children 0.3. All figures are indexed to February 2020. 2020 figures are March-August average. 2020/4 incorporates employment and rental income loss and 2020/5 incorporates raising of minimum pensions to 1,500 YTR and emergency 1,000 YTR transfers to households. Households with less than half of 2018 national median income (2383/2 = 1,191.5 YTR) are defined as poor.

Figure 1. Discretionary Fiscal Support and Credit Borrowing Support in the Emerging Market and Middle-Income Countries (% of GDP)



Source: IMF Data Base Fiscal Policy Responses to Covid-19 (As of March 17, 2021) https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19

Figure 2. Real Production Losses (Against 2019 Levels, %)

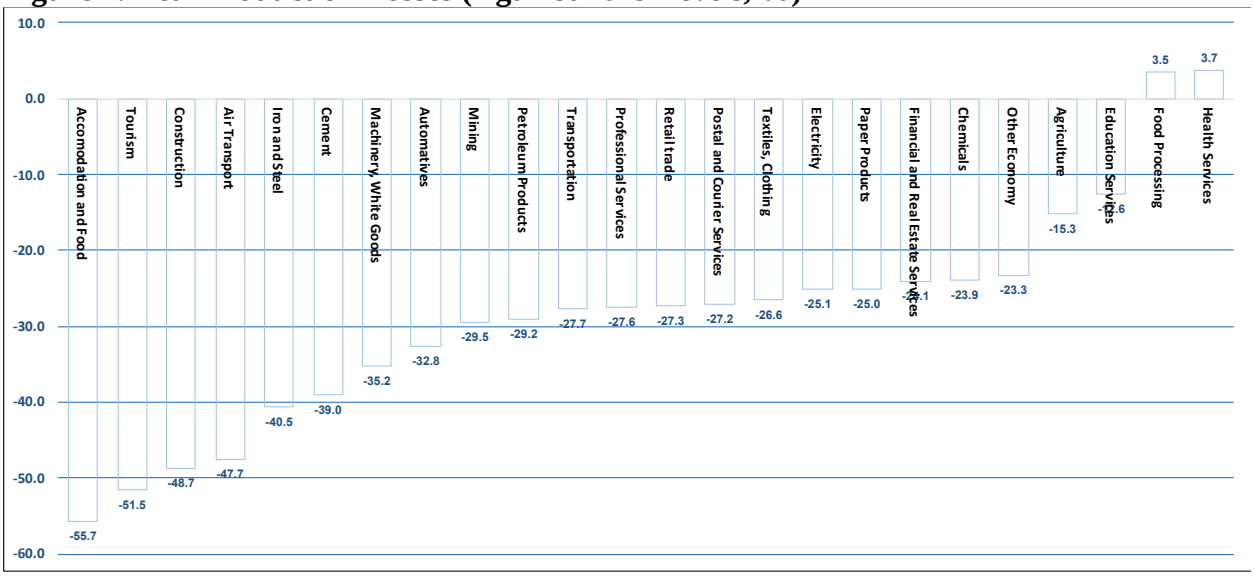


Figure 3 Employment Losses (Against 2019 Levels, %)

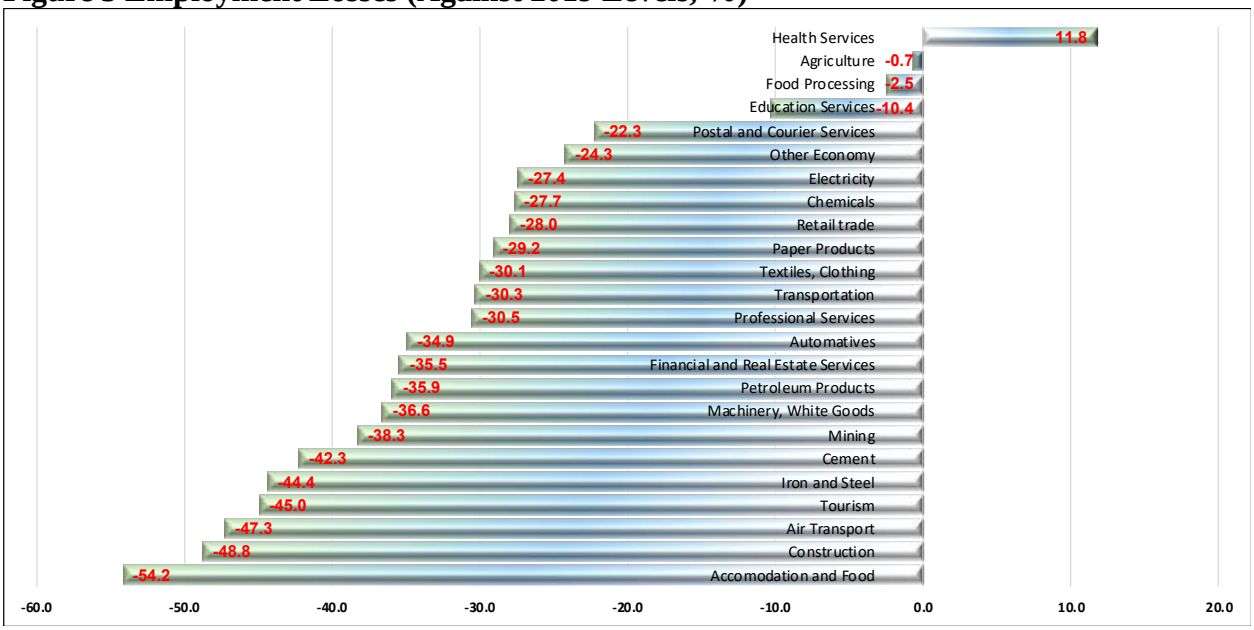
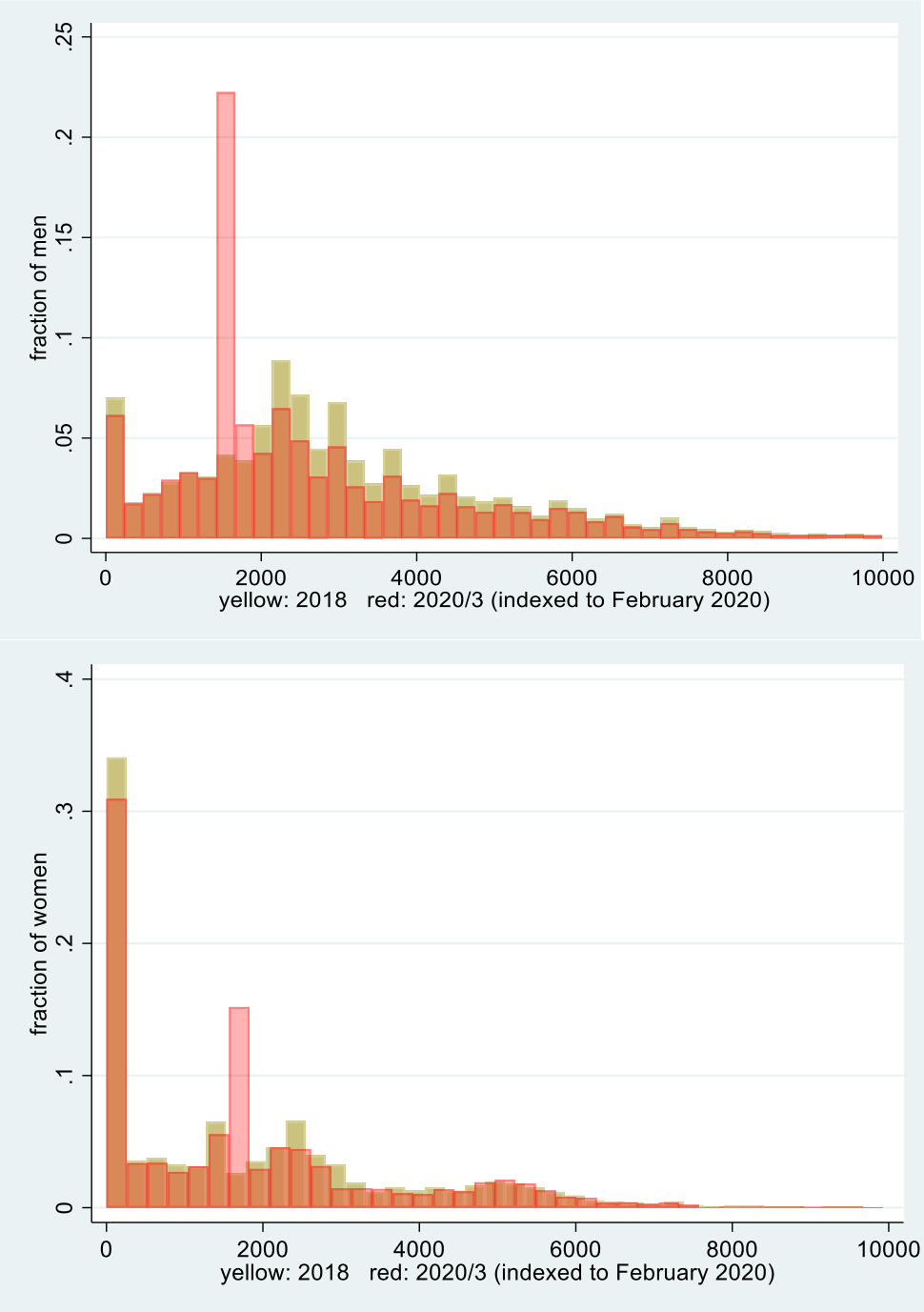
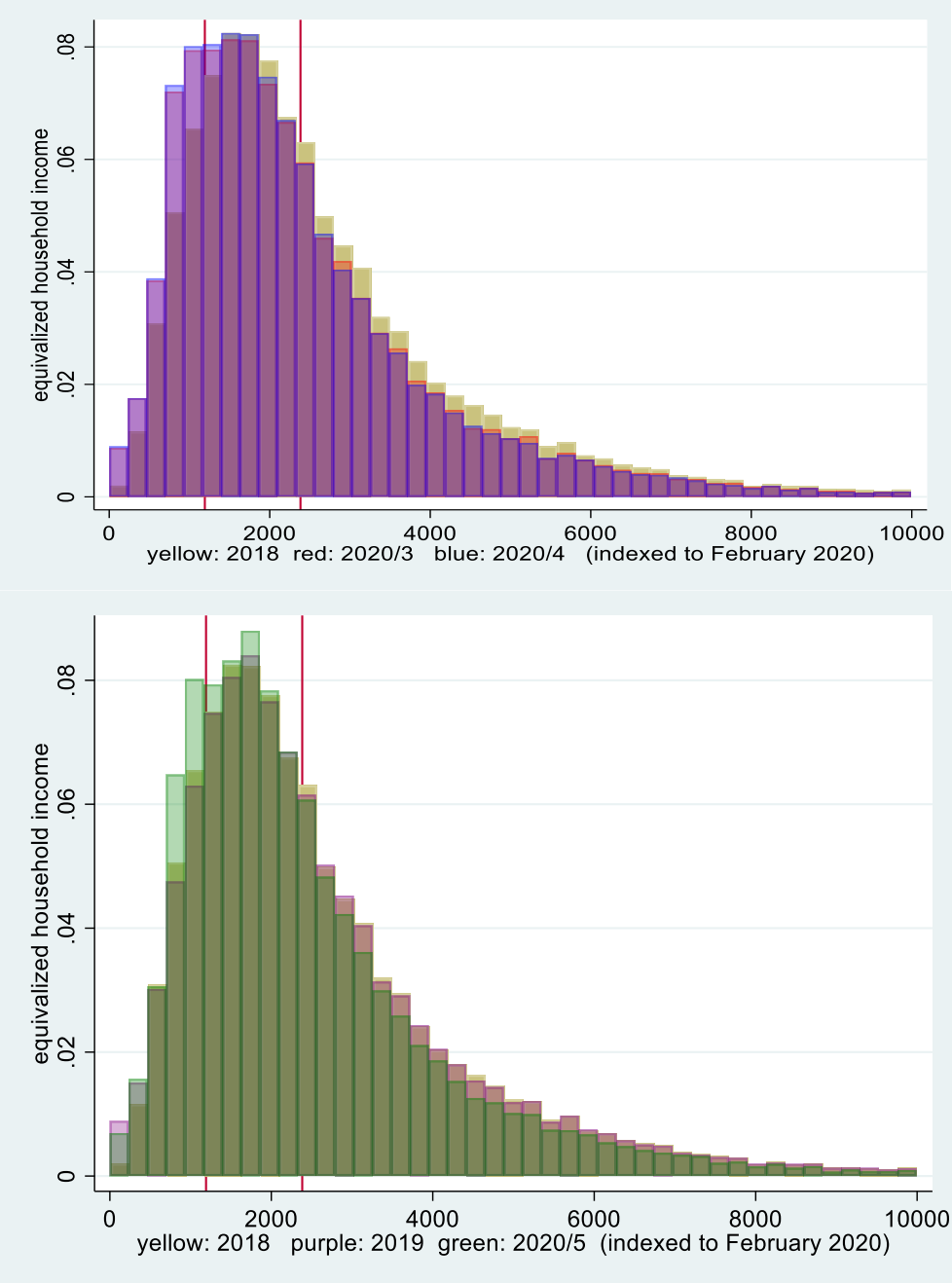


Figure 4: Distribution of employment income



Notes: We only report incomes of employed persons and do report incomes above 10,000 YTR per month to save space. 2020/3: distribution of predicted employment incomes after Step 3. Sampling weights are not applied.

Figure 5: Distribution of per capita household incomes



Notes: We do report incomes above 10,000 YTR per month to save space. Household incomes equalized using OECD scale: first adult is assigned one; other adults (14+ years olds) 0.5, and children 0.3. Vertical line on the left (at 1,191.5 YTR per month) is the poverty threshold at half of median income for 2018. Vertical line on the right (2,383 YTR per month) is the median income. 2020/3/4/5: distribution of predicted employment or household incomes after steps 3/4/5. Sampling weights are not applied.

Figure 6 Covid-19 Pandemic and Labor Income Support Programme: GDP (Billions TL, Fixed 2019 Prices)

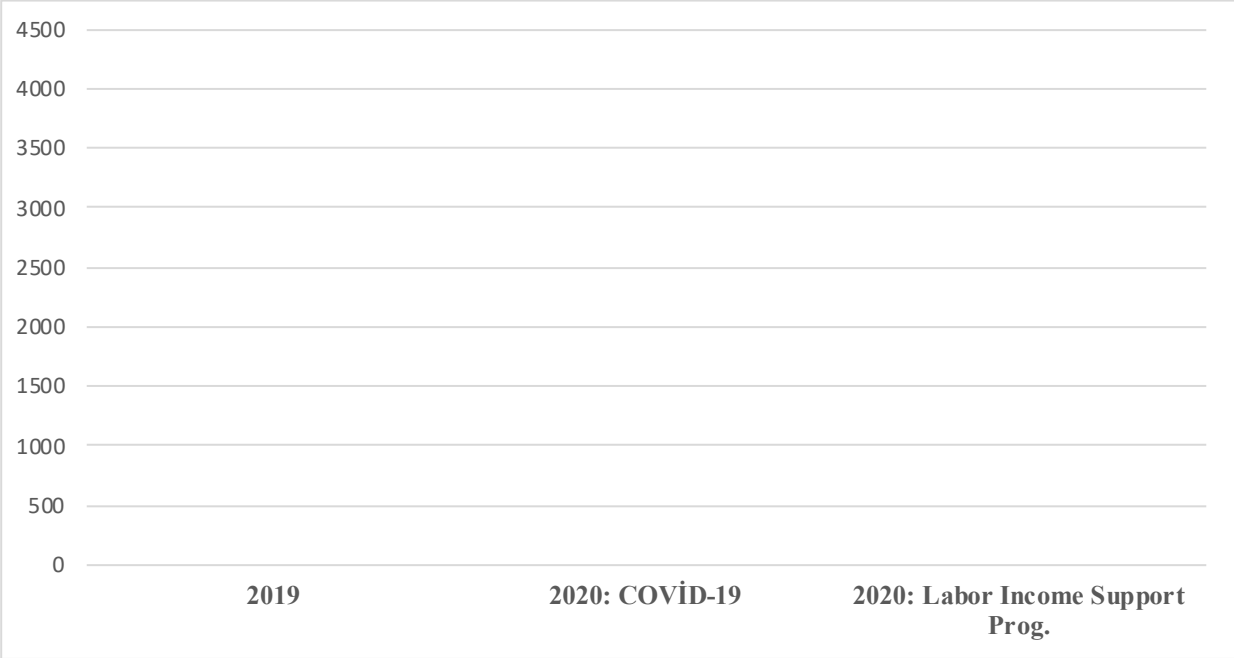


Figure 7. Covid-19 Pandemic and Labor Income Support Programme: Budget Deficit (Billions TL, Fixed 2019 Prices)

Figure 8. Gains in Production by Sectors
(Against the Simulated Effects of the Covid-19 Pandemic (%)